TX.2-2

TX.2

FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM

ELIMINATION REPORT
FOR
AMOCO CHEMICAL COMPANY
(THE FORMER TEXAS CITY CHEMICALS, INC.)
TEXAS CITY, TEXAS

Department of Energy
Office of Nuclear Energy
Office of Remedial Action and Waste Technology
Division of Facility and Site Decommissioning Projects

CONTENTS

ELIMINATION REPORT
AMOCO CHEMICAL COMPANY
(THE FORMER TEXAS CITY CHEMICALS, INC.)
TEXAS CITY, TEXAS

INTRODUCTION

The Department of Energy (DOE), Office of Nuclear Energy, Office of Remedial Action and Waste Technology, Division of Facility and Site Decommissioning Projects (and/or predecessor offices and divisions), has reviewed the past activities conducted on behalf of the Atomic Energy Commission (AEC) at the former Texas City Chemicals, Inc., Texas City, Texas (now Amoco Chemical Company). A preliminary radiological survey revealed some residual radium contamination in the soil that exceeds current DOE radiological guidelines.[1] However, on the basis of a review of available historical and radiological information, DOE has determined that it does not have legal authority to conduct remedial actions at this site. Therefore, this site will not be included in the Formerly Utilized Sites Remedial Action Program (FUSRAP).

This report summarizes information on the radiological status of the site and summarizes the results of DOE's authority investigation. Although the contamination exceeds guidelines, it does not pose a significant radiological hazard to site occupants or the general public under current conditions of site usage. The Environmental Protection Agency will be informed of the status of the site so that it may take appropriate action, if required.

---

[1] U.S. Department of Energy Guidelines for Residual Radioactivity at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites (Rev. 1, 1985).

This elimination report will be archived by DOE through the Assistant Secretary for Management and Administration. A copy of this package will be available for public review between 8:00 a.m. and 4:00 p.m., Monday through Friday (except Federal holidays), at the DOE Public Document Room located in Room 1E-190 of the Forrestal Building, 1000 Independence Avenue, SW., Washington, D.C.

BACKGROUND

Site Function

Texas City Chemicals produced uranium by recovery of U_3O_8 from a phosphate fertilizer production plant under AEC contracts AT(49-1)-616 (construction of the recovery unit, February 14, 1952), extended by amendments to June 1, 1953 and superceded by AT(49-1)-647 (uranium production, May 12, 1953); AT(49-6)-910 (process development studies, through September 10, 1955); and AT(05-1)-481 (date and nature of work unknown). AEC work at the site ceased about 1956, when Texas City Chemicals went bankrupt. Texas City Chemicals, Inc., became part of the Smith-Douglass Company around 1956 and was later sold to the Borden Chemical Division of Borden, Inc. With the phase-out of fertilizer production in September 1977, Borden sold all the remaining facilities and property to the American Oil Company on December 15, 1977. The site is currently operated by a subsidary, Amoco Chemical Company, which manufactures petrochemicals.

Site Description

The facility used under the AEC contract consisted of a recovery plant attached to the phosphate fertilizer plant. Only a concrete pad (approximately 19 x 36 yards) remains from the initial recovery plant. The location of the building debris has not yet been determined. The pad has since been used to store gypsum from phosphate rock processing that occurred after the uranium production ceased. The location of the site is shown in Figure 1.

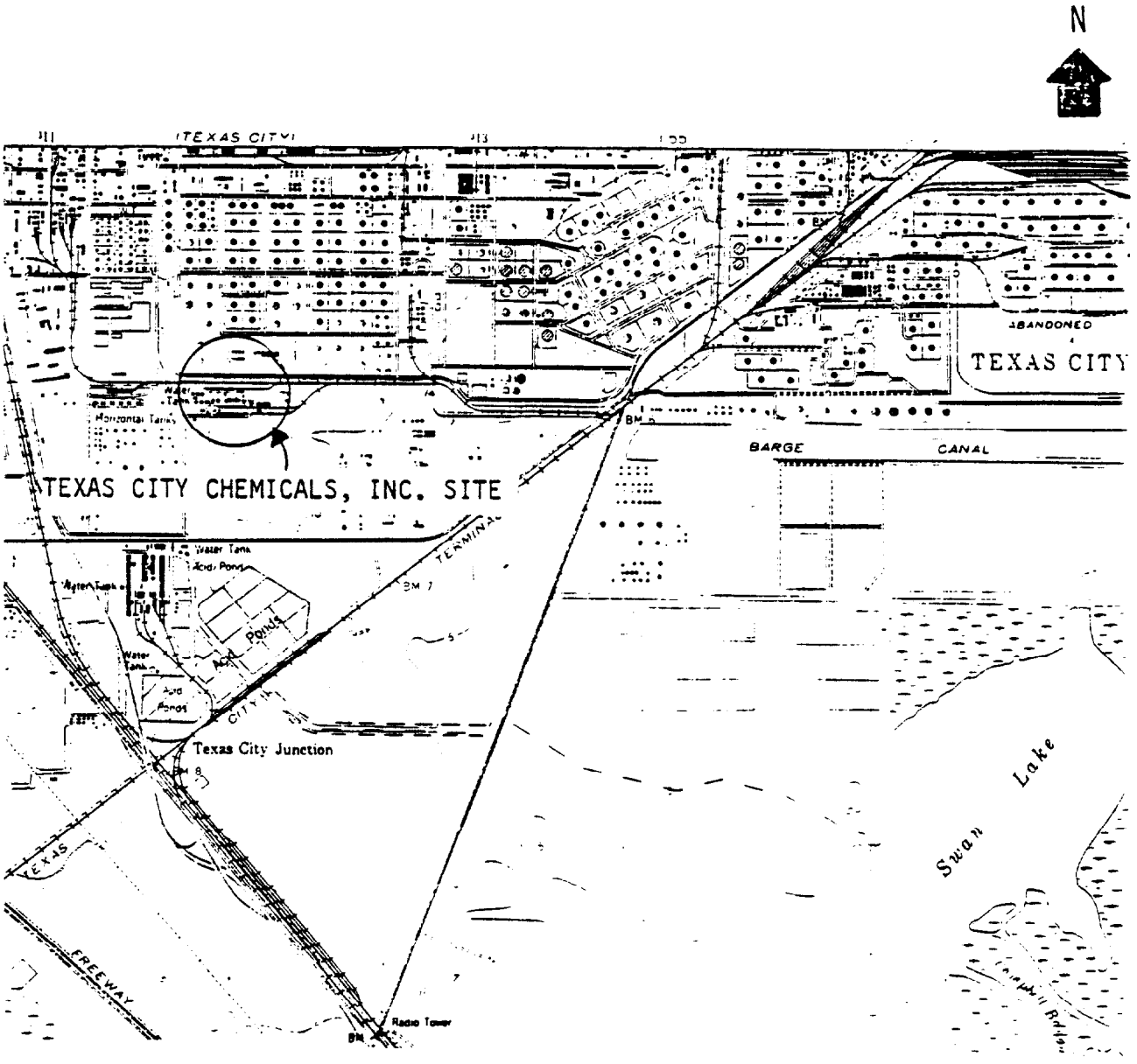

Figure 1. Location of the Former Texas City Chemical, Inc., in Texas City, Texas

Radiological History and Status

DOE Oak Ridge Operations Office and Oak Ridge National Laboratory personnel visited the site on November 17, 1977. Measurements revealed gamma radiation levels and radium-226 concentrations in soil above normal background for this area of Texas. Although the maximum gamma exposure rates at this site are similar to those at other phosphate products plants where uranium recovery is not performed, the maximum radium-in-soil concentration was significantly higher than is generally observed at phosphate plants. The reason for these observations is not known, but because radium was separated out of the phosphoric acid stream prior to the uranium recovery step, the radium contamination is not considered to be the result of AEC work.

ELIMINATION ANALYSIS

The determination of authority for DOE to include a site in FUSRAP and perform any required remedial action is based upon an evaluation of the specific terms of the contract or contracts between AEC and the site owner or operator; confirmation that the residual radioactive contamination at the site did occur during the performance of work sponsored by AEC; and the nature of the working relationship between AEC and the site owner or operator. The latter considerations specifically address ownership of facilities and equipment, control of contractor operations, and AEC involvement in matters pertaining to health and safety at the facilities. Historical records and radiological data are analyzed to provide answers to five specific questions. These questions and the answers resulting from the Amoco Chemical Company authority review are as follows:

1. Was the site owned by a DOE predecessor or did a DOE predecessor have significant control over the operations or site?

No. Texas City constructed both the main phosphate fertilizer production plant and the uranium recovery unit at its own expense. AEC's obligations were limited to purchasing all of the separated uranium and assisting the contractor in obtaining certain construction materials (AT(49-1)-616 only). The contract gave AEC the right to inspect the plant, but AEC did not maintain any on-site presence.

2. Was a DOE predecessor responsible for maintaining or ensuring the environmental integrity of the site (i.e., was it responsible for cleanup)?

   Article VIII, Section 3 of Contract AT(49-1)-647, requires the contractor to conform to all minimum AEC health and safety regulations and requirements and to take "all reasonable steps and precautions to protect health and minimize danger from all hazards to life and property." AEC apparently had an overview role, because the contractor is required to "make all reports and permit all inspections as required by the Commission." AEC obligations at contract (AT(49-1)-647) termination are limited to reimbursement of the contractor's expenditures for the protection of Government property (i.e., the U_3O_8) and legal and accounting services (Article XIV, Section 2.a). Nothing in the contract requires AEC to perform or pay for cleanup of the plant upon termination.

3. Is the waste, residue, or radioactive material on the site the result of DOE predecessor-related operations?

   There is no evidence that the observed contamination resulted from the uranium recovery operations. Phosphate ore does contain radium, but this element is separated out of the phosphoric acid stream prior to the uranium recovery step. Thus, the radium contamination is probably due to the fertilizer production

operations that Texas City Chemicals conducted independent of AEC involvement. One of the four soil samples had a radium concentration significantly higher than the others and significantly higher than what is typically found at phosphate fertilizer plants. It is not clear what would have caused the high concentration, but it appears unrelated to the uranium recovery work because of the nature of the process and the fact that the uranium concentration in that sample is not elevated above the uranium concentrations in the other samples. One sample also contained a potassium-40 concentration approximately an order of magnitude higher than background. The survey report offers no explanation for the observation, but it does not appear to be related to the uranium recovery work.

4. Is the site in need of further cleanup and was the site left in an unacceptable condition as a result of DOE predecessor-related activities?

   Radium contamination in three of four soil samples taken at the site exceeded DOE remedial action guidelines; however, the material is apparently not the result of AEC-related activities.

5. Did the present owner accept responsibility for the site with knowledge of its contaminated condition and that additional remedial measures are necessary before the site is acceptable for unrestricted use by the general public?

   Responsibility for the site during the period of contract performance apparently rested primarily with Texas City Chemicals. No documentation is available to show the extent of subsequent owners' knowledge about the site's radiological condition or remedial action needs when the property transfers occurred.

Summary of Findings

Although the site is contaminated above guidelines, there is currently no evidence that the residual radioactive materials resulted from operations conducted under contract to AEC. The contamination appears to be the result of commercial phosphate fertilizer production operations conducted concurrently with the AEC-related uranium recovery activities. Therefore, based on available information, DOE has no authority under the Atomic Energy Act of 1954, as amended, to conduct remedial actions at this site and it is eliminated from further consideration under FUSRAP. Accordingly, the property owner and the U.S. Environmental Protection Agency will be informed of this decision, so that they may take appropriate action.

REFERENCES

- Atomic Energy Commission Letter Contract No. AT(49-1)-616, dated February 14, 1952, and modifications 1 through 6.
- Atomic Energy Commission Contract No. AT(49-1)-647, dated May 12, 1953.
- Johnson, Jesse C. (AEC) to Lewis L. Strauss (AEC), "Texas City Chemicals, Incorporated," Memorandum of November 18, 1953.
- Oak Ridge National Laboratory. March 1980. Preliminary Survey of Texas City Chemicals, Inc. (Borden Chemical Division of Borden, Inc.), Texas City, Texas.